

## **APPENDIX B**

### **Best Management Practices and Design Features**



## Best Management Practices and Design Features

The following best management practices and design features would be implemented by Newcrest on private and National Forest System land for Phase 1 of the Project and subsequent Project phases, as applicable.

### Air Quality

- Maintain the air quality and dust monitoring program initiated for past Newcrest operations and make necessary adjustments needed to obtain a Surface Area Disturbance (SAD) permit prior to initiating Phase 1 activities. Under this permit, Newcrest would minimize fugitive dust to comply with Nevada statutes and the Clean Air Act (42 United States Code 7401).
- Use a water tender or water truck during road maintenance activities and drill site construction to control fugitive dust.
- Use covers (e.g., tarps) on construction vehicles that are transporting material that is likely to become airborne.
- Minimize the number of stockpiles used for storing materials during cut/fill earthwork.

### Fire Prevention and Control

- Prior to moving on site, contact the MCRMJ Office to determine the level of fire danger and adhere to any prescribed prohibited actions (e.g., campfires, use of chainsaws, welding, etc.).
- Comply with a fire prevention plan that outlines steps to prevent fire and encourage awareness of potential evacuation routes for the duration of on-site activities.
- Carry appropriate hand tools, water, and an ABC-rated fire extinguisher in each vehicle.
- Fit drill rigs with a fire suppression system for the protection of the drill rig.
- Equip all internal combustion power equipment with an approved spark arrester that complies with all state and federal fire requirements, as set forth in U.S. Forest Service (USFS) guidelines (2012). All spark arresters shall be in satisfactory working condition. The following are exempt from the requirements of this rule: 1) turbine-charged internal combustion engines in which 100% of the exhaust gasses pass through a turbo-charger, 2) engines of passenger vehicles and light trucks equipped with a muffler and baffles, and 3) water pumping equipment used in fighting fire.
- Routinely mow around Project infrastructure and use noxious weed management to minimize fire risk.
- Immediately report any fire to 911 or the Elko Dispatch Center at 775-748-4000. USFS would be notified of the fire location and any action taken.
- Timber from road and drill pad construction that may be utilized for firewood shall be limbed and cut into manageable lengths and decked in the area of the Jarbidge Dumpsite or as directed by the USFS. The wood decks shall be placed where ingress and egress to the dumpster is not blocked for loading and unloading. Slash shall be scattered, chipped, piled or managed as directed by the USFS.

### Inspection and Maintenance (during all periods of active operation)

- BMPs and erosion control measures would be monitored at frequent intervals and within 24 hours of a 0.5-inch precipitation storm event.

- Regularly inspect, test, maintain, and repair all industrial equipment and systems to avoid situations that may result in leaks, spills, and other releases of pollutants in stormwater discharged to receiving waters.
- Remove sediment from sediment traps or sedimentation ponds when design capacity has been reduced by 50%.
- Routinely inspect temporary roads to verify that erosion controls are implemented, functioning, and appropriately maintained. Remove vegetation from swales, ditches, shoulders, and cut and fill slopes only when it impedes adequate drainage or vehicle passage or obstructs necessary sight distance to avoid or minimize unnecessary or excessive vegetation disturbance.
- Culverts would be routinely inspected for vegetation and debris blockages and erosion issues.
- Maintain the road surface drainage system to intercept, collect, and remove water from the road surface and surrounding slopes in a manner that reduces concentrated flow in ditches and culverts, and over fill slopes and road surfaces.
- Develop a Stormwater Pollution Prevention Plans (SWPPP) pursuant to all guidelines and requirements in the Nevada Mining Stormwater Permit.

#### Surface Water Quality

- Construct a 6- to 12-inch earthen berm around the perimeter of the drill site to collect any water and precipitation falling on the drill rig and drill pad and direct it to the sump.
- Do not allow water or drilling effluent to flow uncontrolled from drill sumps.
- Avoid standing waterbodies such as ponds and lakes and unstable slopes (evidence of landslides).
- Procure a Clean Water Act Section 404 Nationwide Permit prior to constructing any crossing of waters of the U.S. where required by the U.S. Army Corp of Engineers.
- Obtain permits for use of surface water (e.g., instream flow rights) and groundwater under appropriate Federal and State legal and regulatory authorities to avoid, minimize, or mitigate adverse effects to stream processes, aquatic and riparian habitats and communities, groundwater-dependent ecosystems, and recreation and aesthetic values.
- Avoid surface disturbing activities in the Jarbidge municipal watershed protection area associated with the Bear Creek drainage (see Figure 5).
- Avoid spring and seep heads. Known seep and springs are illustrated in Appendix A.(Figure 8).
- If an unknown spring or seep head is encountered appropriate mitigations would be identified in consultation with US Army Corp of Engineers pursuant to the Project Nationwide Permit (Clean Water Act Section 404)
- Roads that run perpendicular to ephemeral drainages would be constructed to minimize sediment input into the drainage. Crossings would be built to maintain the stability of the road and stream as well as minimize soil and debris overcast during construction and reclamation of roads, drill sites, and temporary staging areas.
- For drill site locations where the collar is within 100 feet of the elevation of the stream or stream channel, cement the drill hole from the collar to 100 feet below the elevation of the stream channel.
- Install erosion-control devices to stabilize recently disturbed sites and control sediment transport, as needed, which could include matting, geotextile, hydro mulch, or dry straw mulch, and use silt fences, certified weed-free straw bales, or sumps as approved with each phase of the Project (detailed descriptions and illustrations of erosion-control devices to be installed on roads or drill sites on varying grades found within the Project Area are provide in Appendix E, Drainage Plan).

- Install sediment and stormwater controls before initiating surface-disturbing activities (detailed descriptions and illustrations of sediment and stormwater controls to be installed on roads or drill sites on varying grades found within the Project Area are provide in Appendix E, Drainage Plan).
- Place waterbars and/or rolling dips as needed on any roads to help control erosion (detailed descriptions and illustrations of waterbars to be installed on roads on varying grades found within the Project Area are provide in Appendix E, Drainage Plan).
- Design the sump pit to contain all anticipated drilling muds, cuttings, fracture fluids, and precipitation while maintaining a suitable amount of freeboard to avoid overtopping.
- Locate sump pits on stable areas within the drill pad and away from natural watercourses, riparian areas, wetlands, floodplains, and areas of shallow groundwater.
- Existing roads subject to maintenance and widening activities located within 500 feet (horizontal distance) of critical bull trout (*Salvelinus confluentus*) habitat would be reclaimed back to pre-disturbance road travel widths.
- Final reclamation of newly constructed roads at stream crossings would have all drainages re-established after recontouring and extra stabilization measures (e.g. straw bales, fabric mats, straw wattles, etc.) installed 50 feet on either side of the drainage to reduce sedimentation transport during revegetation efforts. The success of the vegetative growth on a reclaimed site would be evaluated for bond release no sooner than during the third growing season after earthwork and seeding has been completed.

#### Groundwater Resources

- In the unlikely event that drilling intersects underground workings (voids), the void would be treated according to NAC requirements, including grouting above and below the void with 50 feet of cement to prevent any cross contamination of aquifers.
- If excessive groundwater is encountered during the drilling process, stop drilling activities until discharge can be controlled using all available containment methods.
- A qualified professional geologist, driller or engineer would be at the drill site to record important hydrogeological information such as water table levels, water inflow rates, fracture/fault zones, voids, zones of lost circulation, and other useful information.
- No screened bentonite chips or uncontaminated soil would be poured down a drill hole to plug it. All plugging material would be placed by tremie pipe or through the drill rods from the bottom of the hole upward. Abandonment material may be poured into the hole from the surface only if the drop is less than 30 feet.
- The cement cap must be placed directly on top of acceptable settled and set-up abandonment material. Abandonment material must be certified to be settled prior to setting the cement cap.
- Zones of lost circulation below the water table must be evaluated by the on-site qualified professional to ensure proper plugging. The zone must be indicated on the USFS Bore Hole Abandonment Report and explain what was done to re-establish circulation or how the zone was isolated with a drill hole plug/packer immediately above the zone during abandonment. Drill rods should never be greased to remedy zones of lost circulation. In the case that circulation is lost and does not return, the drill hole must be plugged from bottom to top in such a way that the plugging medium supports the surface cement plug.
- All drill hole collars would be cemented and a well head device would be installed for purposes of controlling any artesian flow should such flow actually be encountered. This would also allow

for the pumping of a weighted mud and/or cement under controlled conditions to abandon the hole should it become necessary.

- Adequate abandonment materials would be present on temporary staging areas to hydraulically terminate or stop artesian flow and for final plugging.
- A backhoe would be stationed at a temporary staging area nearest to the drill site(s) if temporary sump containment needs to be added.
- Drill holes would be grouted from bottom to top.
- All drill hole collars would be cemented to bedrock, and a well head device and/or blowout preventor would be installed to the collar for purposes of controlling any artesian flow should such flow be encountered. This would also allow for the pumping of a weighted mud and/or cement under controlled conditions to abandon the hole should it become necessary. The cemented collar and well head / blowout preventor would be pressure tested once installed prior to advancing drilling.

#### Wildlife and Threatened and Endangered Species

- Strategically site all proposed surface disturbance, which includes road and pad overcast, excluding the three AOP culvert crossings outside of designated 300-foot (horizontal distance) fish-bearing stream buffers, 150-foot (horizontal distance) non-fish-bearing perennial stream buffers, and 100-foot (horizontal distance) intermittent stream buffers (see Figure 6<sup>1</sup>).
- Install AOP culverts according to applicable USFS guidelines. AOP culverts would incorporate a single-span, open-bottom arch or reinforced single-span, open-bottom concrete culvert and would be designed to prioritize AOP, ecological connectivity, and user safety without causing structural damage to the crossing or diversion of the stream. The crossing design would accommodate 100-year flood events to adequately allow for debris and sediment transport rates to closely resemble those of upstream and downstream conditions.
- Ensure that drill pads within 500 feet (horizontal distance) of critical bull trout (*Salvelinus confluentus*) habitat that would remain over the winter have weed free straw bales or equivalent runoff control features staked in the ground below the drill site to catch runoff debris during snow melt; drill holes would be grouted from bottom to top; additionally, Newcrest would implement the following additional BMPs for drill pads, new access roads, and other surface-disturbing activities located within 500 feet (horizontal distance) of fish-bearing streams:
  - The holes would be drilled with core only.
  - The collars would be cemented, and a well head device would be attached for purposes of controlling any artesian flow should such flow actually be encountered. This would also allow for the pumping of a weighted mud and/or cement under controlled conditions to abandon the hole should it become necessary.
  - Acceptable silt fences or other runoff control features would be used and installed on-site at each drill pad and along all newly constructed access roads to prevent sediment pulses and would be repaired and maintained as necessary.
  - When drill holes achieve >50% mud and cuttings return, a centrifuge would be used onsite to minimize water use and maximize drill fluid recycling.

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<sup>1</sup> Figure 6 displays a desktop representation of Project infrastructure siting to approximate 300-foot, 150-foot, and 100-foot buffers to RHCAs. As part of this Proposed Action, Newcrest is committed to siting, constructing, and maintaining Project infrastructure outside of RHCA buffers throughout the Project Area including distances required for cut and fill earthwork using geospatial services and sub-meter accuracy geolocation equipment (e.g., global positioning system) to field-delineate and avoid extents of these restrictive areas.

- Additional ground stabilizing measures would occur such as seeding, mulching and tree planting with approved species and weed free mulch on all newly disturbed ground consistent with reclamation practices discussed in section **Error! Reference source not found..**
- Avoid road construction, maintenance, and activities that create noise at 10 dB above ambient measures at the perimeter of an occupied GRSB lek during the breeding season (March 1–May 15) from 6:00 p.m. to 9:00 a.m.
- During breeding and nesting (March 1–June 30), avoid surface-disturbing and disruptive activities to priority habitat management areas, general habitat management areas and within 4.0-miles of an active or pending lek.
- Close or mitigate abandoned drill sites to reduce predation of GRSB by eliminating tall structures that could provide nesting opportunities and perching sites for predators, as applicable.
- Fence sumps to prevent wildlife from entering the exposed depression. Each sump would include a cut at a shallow angle to facilitate safe egress of any wildlife that may enter the sump.
- Implement seasonal restrictions (no drilling or ground disturbing activities) in designated elk, deer, and migratory bird habitats from March 1 to July 15.
- Incorporate dark sky–compliant lighting into operations across the entire Project to minimize glare, light trespass, and skyglow concerning bat protection.
- Complete any drill sites on the west side of the Project Area in subsequent phases (near the Jarbidge River) by the second week of October to protect bat species and hibernacula.
- To avoid possible disturbance to migratory birds that may be nesting in the Project Area, avoid work between March 1 and July 15 to the extent practicable. If work during this time is unavoidable, qualified biologists would conduct nesting bird surveys no more than seven days prior to surface disturbance activities occurring to determine if active nests of bird species are present within the work area. If active nests are observed, appropriate spatial (ranging from 10-200 meters depending on the species) and temporal buffers would be established around the active nest (March 1 – July 15; August 31 for active raptor nests) or Newcrest would request an exception, waiver, or modification from the USFS.
- Avoid removal of snags to benefit wildlife inhabiting standing dead trees.
- Avoid areas verified to support special-status plant species during siting, design, and implementation of Project-related activities.

#### Waste Management

- All refuse generated during the Project would be removed and disposed of in an authorized landfill facility off-site, consistent with applicable regulations. No refuse would be disposed of or left on-site.
- Provide portable toilets for use while drill crews are on-site at each drill site.
- Dispose of collected garbage at properly designed and operated municipal-, county-, or state-authorized sanitary landfills or waste recycling sites where groundwater and surface water are adequately protected.

#### Hazardous Materials Use and Vehicle Maintenance

- Follow the Spill Prevention, Control, and Countermeasure (SPCC) Plan for spill prevention, containment, notification, and cleanup (see Appendix D)

- Use suitable measures around vehicle service, storage and refueling areas, chemical storage and use areas, and waste dumps to fully contain spills and avoid or minimize soil contamination and seepage to groundwater.
- Use a 4,000-gallon, double-walled, self-contained, labeled TransCube tank and 500-gallon, double-walled, self-contained TransCube tank for diesel storage on private land.
- Transport and handle chemical containers in a manner that minimizes the potential for leaks and spills.
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  - Secure containers properly to avoid or minimize shifting in transport.
- Label and handle all hazardous materials in accordance with Nevada Department of Transportation (NDOT) and MSHA regulations. If fuel or any other hazardous materials are stored in temporary staging areas, store them in bunded containers and self-contained flammable material cabinets.
- Plan for suitable equipment refueling and servicing sites during project design.
  - Allow temporary refueling of drill rigs at approved locations which includes permitted drill sites.
  - Allow temporary servicing only at approved locations located well away from the aquatic management zones (AMZ), groundwater recharge areas, and waterbodies.
- Locate, design, construct, and maintain petroleum and chemical delivery and storage facilities consistent with applicable local, State, and Federal regulations.
- Provide training for all agency personnel handling fuels and chemicals in their proper use, handling, storage, and disposal.
- Report spills and initiate suitable cleanup action in accordance with applicable State and Federal laws, rules, and regulations.
- Manage the use, storage, discharge, or disposal of pollutants and hazardous or toxic substances generated by the facility in compliance with applicable regulations and requirements.
- Ensure that hazardous spill kits are adequately stocked with necessary supplies and are maintained in accessible locations.
- Respond to hazardous materials releases or spills using the established site-specific contingency plan for incidental releases and the SPCC for larger releases.
  - Train employees to understand these plans; the materials involved; and their responsibilities for safety, notification, containment, and removal.
- Follow the measures outlined in the Petroleum Risk Assessment and Risk Reductions Procedures Report

#### Special Management Areas

- Avoid surface-disturbing activities within 3,000 feet of wilderness area boundaries.
- No drill sites or drill roads would be proposed in any phase within NFS campgrounds/recreation sites or the Mahoney Administrative Site.
- If a drill site is proposed near the town of Jarbidge in subsequent phases, reasonable hours of operation or other measures would be utilized to not adversely impact the town at night due to noise.



### Noxious Weeds

- Design and implement access road construction and maintenance activities to reduce the risk of vehicle- or human-caused wildfires and the spread of noxious weeds. Activities may include the removal or mowing of vegetation a car-width off the edge of roads; use of weed-free earth-moving equipment, gravel, fill, or other materials; and blading or pulling roadsides and ditches that are infested with noxious weeds only if required for public safety or protection of the roadway.
- Control noxious weeds in accordance with the Humboldt-Toiyabe National Forest Supplement FSM Chapter 2080-Noxious Weed Management (9/10/04), Section 3 (Rehabilitation), Section 6 (Minerals Exploration and Mining), Section 7 (Road Maintenance), and Section 8 (Road Construction and Heavy Equipment Use). The State of Nevada requires that all designated noxious weeds are eradicated before such weeds propagate and spread.
- Utilize the risk assessment established in the Humboldt-Toiyabe National Forest Noxious Weed Management Plan (Supplement No.: 2000-2004-1) to inventory and guide noxious and invasive weed management actions.
- Prior to vegetation and soil disturbing activities, known noxious and invasive weed infestations and unknown weed infestations identified during risk assessments would be marked with signs or flagging. Signs or flagging placed within the Project Area would alert construction personnel to the locations and types of weed infestations.
- Avoid or minimize all types of travel through noxious and invasive weed areas.
- Clean and inspect all heavy-equipment and other vehicles before bringing into the Project Area; vehicles and equipment exiting a known infestation area would be washed onsite prior to mobilizing to another work area or leaving the Project Area.
- If seed is required, purchase blue tag certified seed.
- Treat and control noxious weeds recognized and regulated by the Nevada Department of Agriculture, Natural Resource Conservation Service and Elko County that are a result of or interfere directly with construction-related, surface-disturbing activities for at least a 3-year period following the last activity.
- Additional details are found in the Noxious Weed Management Plan (see Appendix C) which was prepared following Humboldt-Toiyabe National Forest Supplement FSM Chapter 2080-Noxious Weed Management guidance.

### Livestock Protection

- No fences or gates would be cut or altered without prior USFS permission. All damage would be corrected by the Newcrest immediately upon discovery and the USFS shall be notified within 24 hours.
- Crawler tractors would not cross cattle guards that are not protected with timbers, tires, or other suitable material, and no equipment would travel across bridges that are not adequate to support the equipment weight. Equipment would not be driven across cattle guards or bridges that are not capable of supporting the equipment load.
- In subsequent phases if a drill road is proposed through a range fence, a suitable cattle guard would be installed and an adjacent gate constructed to Forest Service specifications.

### **Cultural Resources**

- Per the results of consultation with the Nevada State Historic Preservation Office, a qualified archaeological monitor will be present during all construction activities for identified eligible cultural resource sites.
- Any identified cultural sites would be avoided or mitigated to prevent or mitigate effects to historic properties (a historic property is any prehistoric or historic site eligible for the National Register of Historic Places).
- Should cultural resources, human remains, items of cultural patrimony, sacred objects, funerary items, or an undocumented site be discovered during Project activities, all operations would stop within a 300-foot radius of the discovery and Newcrest would, within 24 hours, notify the District Ranger at (775) 738-5171 and all appropriate agencies.

### **Literature Cited**

U.S. Forest Service (USFS). 2012. Spark Arrester Guide – General Purpose and Locomotive (GP/Loco) Volume 1. National Technology and Development Program; 5100 Fire Management, 1251, 1809 – SDTDC.